UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,034	01/28/2004	Kartik B. Ariyur	H0004975-1065	4798

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EXAMINER
LE, JOHN H

ART UNIT	PAPER NUMBER
2863	

MAIL DATE	DELIVERY MODE
08/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-14,16-26 and 30-40* is/are pending in the application.

    4a) Of the above claim(s) *2, 15, 27-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,12-14,16,17,24-26,30,31,39 and 40* is/are rejected.

7)☒ Claim(s) *5-11,18-23 and 32-38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:.

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Response to Amendment

1.   This office action is in response to applicant's amendment received on

06/14/2007.

Claims 1, 3-11, 14, 26, and 30-38 have been amended.

Claims 2, 15, and 27-29 have been cancelled.

Claim Objections

2.   Claims 26 and 32 are objected to because of the following informalities:

Claim 26 recites the limitation "the physical system" in line 4. There is insufficient

antecedent basis for this limitation in the claim.

Claim 32 recites the limitation "the extrapolation mechanism" in line 7. There is

insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1, 3-4, 12-14, 16-17, 24-26, 30-31, and 39-40 are rejected under 35

U.S.C. 103(a) as being unpatentable over Liu et al. (US 2002/0120416 A1) in view of

Bao et al. (USP 6,996,374).

Regarding claims 1, 14, and 26, Liu et al. disclose a trending system comprising: a trending program; and computer readable medium bearing the trending program (e.g. [0033]); and wherein: the trending program comprises a sliding window filter (software for sorting) (e.g. [0038], [0039]); the sliding window filter receives a data set from a physical system (e.g. clock skew) (e.g. [0033]-[0034]); the data set comprises a plurality of data points (e.g. [0036]); the sliding window filter (software for sorting) selects multiple data windows in the data set (e.g. [0039]); each of the data windows including a subset plurality of the data points in the data set (e.g. [0037]-[0038]); the sliding window filter generates lower confidence bounds for each data point using each of the multiple data windows that includes the data point (e.g. [0038]-[0039]); and the sliding window filter selects a lower confidence bound for each data point that results in the smallest confidence interval for that data point (e.g. [0037]-[0038]); and the sliding window filter generate a filtered estimate of the data set from the selected lower confidence bounds for each data point (e.g. Figs.7A,7B,7C, [0037]-[0038], [0042], [0058]).

Liu et al. fail to teach the sliding window filter generates upper confidence bounds; selects an upper confidence bound and generate a filtered estimate of the data set from the selected upper confidence bounds.

Bao et al. teach a window filter generates upper confidence bounds (bound data around the select points along the regression line 619, therefore bound data around the select point above the regression line is an upper confidence bound and bound data around the select point below the regression line is lower confidence bound); selects an

upper confidence bound and generate a filtered estimate of the data set from the selected upper confidence bounds (e.g. Fig.6, Col.20, lines 14-35, Col.21, lines 33-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform a window filter generates upper confidence bounds; selects an upper confidence bound and generate a filtered estimate of the data set from the selected upper confidence bounds as taught by Bao et al. in the system of Liu et al. for the purpose of improving the accuracy of the regression by using pre-regression filtering (Bao et al., Col.6, lines 21-29).

Regarding claims 3,16, and 30, Liu et al. fail to teach generates upper confidence bounds and lower confidence bounds through a linear regression and a statistical inference of the data set.

Bao et al. teach disclose generates upper confidence bounds and lower confidence bounds through a linear regression and a statistical inference of the data set (e.g. Fig.6, Col.20, lines 14-35, Col.21, lines 33-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform a window filter generates upper confidence bounds and lower confidence bounds through a linear regression and a statistical inference of the data set as taught by Bao et al. in the system of Liu et al. for the purpose of improving the accuracy of the regression by using pre-regression filtering (Bao et al., Col.6, lines 21-29).

Regarding claims 4, 17, and 31, Liu et al. fail to teach the statistical inference using Student-t statistic.

Bao et al. teach the statistical inference using Student-t statistic (e.g. Col.20, lines 14-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform the statistical inference using Student-t statistic.as taught by Bao et al. in the system of Liu et al. for the purpose of improving the accuracy of the regression by using pre-regression filtering (Bao et al., Col.6, lines 21-29).

Regarding claims 12, 24, and 39, Liu et al. disclose adjacent windows in the multiple data windows overlap in the data set (e.g., more than one point in the data set has the same coordinate)[0038]).

Regarding claims 13, 25, and 40, Liu et al. disclose the physical system (e.g. clock skew) (e.g. [0033]-[0034]) comprises an aircraft system (wireless communication links) (e.g. [0021], [0059]).

Allowable Subject Matter

5.   Claims 5-11, 18-23, and 32-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 5, 18, and 32, in combination with other limitations of the claims, none of the prior art of record teaches or suggests wherein a trend change detection mechanism determines a first convex hull for a set of upper confidence bounds and a second convex hull for a set of lower confidence bounds; the trend

change detection mechanism adapted to compare the first convex hull and the second

convex hull to determine a transition point in the data set; the trend change detection

mechanism adapted to determine an estimated trend of the data set based on the

transition point and the set of upper confidence bounds and the set of lower confidence

bounds. It is these limitations as they are claimed in the combination with other

limitations of claim, which have not been found, taught or suggested in the prior art of

record, that make these claims allowable over the prior art.

Regarding claims 8, 21, and 35, in combination with other limitations of the

claims, none of the prior art of record teaches or suggests wherein the trending system

further comprises an outlier elimination mechanism, the outlier elimination mechanism

adapted to remove statistical outliers in the data set by generating a first prediction cone

for data points in a left sample window, generating a second prediction cone for data

points in a right sample window, and determining if data points in a test window reside

in the first prediction cone and the second prediction cone. It is these limitations as they

are claimed in the combination with other limitations of claim, which have not been

found, taught or suggested in the prior art of record, that make these claims allowable

over the prior art.

Response to Arguments

6.   Applicant's arguments filed 06/14/2007 have been fully considered but they are
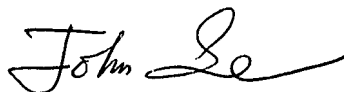
not persuasive.

Applicant's arguments with respect to claims 1, 3-4, 12-14, 16-17, 24-26, 30-31,

and 39-40 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to John H. Le whose telephone number is 571 272 2275.

The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John E. Barlow can be reached on 571 272 2269. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

John H. Le

Patent Examiner-Group 2863

August 14, 2007